

ROSIN
Serial No. 10/549,280
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AMENDMENT TO THE DRAWINGS:

The attached replacement sheet of drawings includes changes to Fig. 1. The replacement sheet, which includes Figs. 1 and 2, replaces the comparable sheet of drawings as originally filed.

Attachment: Replacement Sheet – 1 Sheet including Figs 1 and 2

REMARKS

Favorable reconsideration and allowance of this application based on the amendments above and the remarks which follow are requested.

1. Response to Drawing Objection

A replacement sheet comprised of Figs. 1 and 2 is being submitted wherein the label of Fig. 1 has been revised so as to identify it as "prior art". As such, the drawing objection advanced by the Examiner under MPEP §608.02(g) has been addressed.

2. Discussion of Claim Amendments

By way of the amendment instructions above, claims 30, 38 and 39 have been amended so as to address the Examiner's objections.

Following entry of this amendment, therefore, claims 21-41 will remain pending herein, of which claims 27-28 have been withdrawn as directed to patentably distinct species.¹ Favorable reconsideration and allowance of all pending claims are requested.

3. Response to 35 USC §103(a) Rejection

The only issue remaining to be resolved in this application is the alleged "obviousness" and hence unpatentability of claims 21-26 and 29-41 under 35 USC §103(a) based on Archer et al (USP 4,996,951) in view of Rigby (USP 5,591,895) and Perrone (USP 6,325,025). Applicants respectfully disagree and suggest that all pending claims are patentably distinguishable over the applied references of record.

¹ Claims 27-28 have been retained in the application for the purpose of rejoinder following allowance of a generic claim covering the same.

In this regard, the Examiner will recall that the present invention relates to a method of and a system for cleaning heat exchange surfaces in an exhaust gas stream, each comprising three main elements, namely:

1. sequential cleaning of different parts of the heat exchange surfaces, to release particles from the part being cleaned;
2. measuring of the released particles entrained with the exhaust gas stream, and
3. linking together the location information of parts being cleaned and particle measurement data created during the cleaning so as to create information on fouling of the heat exchange surfaces.

Archer et al teach to control removal of soot from heat exchange surfaces on the basis of economical and soot sintering and melting considerations based on an indication of present soot layer thickness. The soot layer thickness is derived from observed temperature differences ΔT and heat transfer rates Q , which are obtained on the basis of the fuel flow and ash content (see claim 7) by using a model. Thus, a basic teaching of Archer et al is to use a model to estimate the soot layer thickness, not to directly or indirectly measure the layer thickness. Especially, Archer et al does not suggest or give any hint to link together the location information of parts being cleaned and particle measurement data created during the cleaning so as to create information on fouling of the heat exchange surfaces. Thus, an ordinarily skilled artisan knowing the teaching of Archer et al has no reason to abandon the layer thickness estimating model of Archer et al, and to replace it by actually creating information on fouling by linking together the location information of parts being cleaned and particle measurement data created during the cleaning.

Perrone teaches a system for optimizing the timing and operational parameters of sootblowing deposits on boiler surfaces based on measuring the extent of combustion deposits on the surface, preferably by a heat flux sensor, immediately after a sootblowing operation. Perrone does not suggest or give any hint to link together the location information of parts being cleaned and particle measurement data created during the cleaning so as to create information on fouling of the heat exchange surfaces.

Applicants note also that the measuring of particles released by the cleaning of heat exchange surfaces, or linking together the location information of parts being cleaned and particle measurement data, in accordance with the present invention, does not give any information on possible remaining deposits. Thus, an ordinarily skilled artisan knowing the teaching of Perrone would not replace the detecting of remaining deposits by measuring particles released by the cleaning of heat exchange surfaces,

Rigby teaches a method and an apparatus for detecting particles in a gas flow, such as particle emissions from stacks. The method of Rigby could possibly be used in the practice of the present invention, but it is clear that Rigby does not suggest or give any hint to use the method to link together the location information of parts being cleaned and particle measurement data created during the cleaning so as to create information on fouling of the heat exchange surfaces.

Measuring particles in a gas stream can be made by many known methods. One such known method to measure particles is in fact described by Rigby. However, such a disclosure per se cannot render obvious the present invention since no other applied reference discloses or suggests the claimed features of the present invention. Thus, applicants respectfully submit that an ordinarily skilled artisan has no reason to use the method of Rigby together with the controlling or optimizing cleaning of heat exchange surfaces by using any of the methods described by Archer et al and Perrone.

Therefore, the presently claimed invention is non-obvious in view of the applied references to Archer et al, Perrone and Rigby.

Specifically, the Examiner asserts on page 4 of the Official Action that it would have been obvious to combine the method of the Rigby teaching in the method as per Archer teaching in order to enhance the control of unwanted particulate emissions. Further, the Examiner claims that it would have been obvious to include the step of linking together and storing into an electronic memory, as per the Perrone teaching, the location information of the parts being cleaned and the particle measurement data, as per the Archer/Rigby teaching, so as to create information of fouling of the heat exchange surfaces

We emphatically do not agree with this reasoning.

Firstly, Perrone teaches to store a database of boiler operating conditions, such as fuel/air mixtures, feed rates, types of fuel used, and optimum sootblower operation parameters, such as jet progression, jet pattern, lance rotational speed, fluid velocity and fluid pressure, in order to be able to select initial sootblower operation parameters, which are suitable for each of the boiler operating conditions. However, particle measurement data, obtained for example by the method of Rigby, would not fall into any of boiler operating conditions or sootblower operating parameters. Thus, Perrone does not teach to store particle measurement data into a memory. Moreover, an artisan would not have any reason, on the basis of the teaching of Pen-one, to store particle measurement data into a memory, because, according to the applied references, there is no connection between the particle measurement data and the selection of suitable sootblower operation parameters.

Secondly, even if an artisan would store particle measurement data into a memory, he would not have any reason, on the basis of the applied references, to link together the location information of the parts of the heat exchange surfaces being

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cleaned and the particle measurement data created during the cleaning. Therefore, he would not create information on the fouling of heat exchange surfaces as a function of the location of the heat exchange surfaces.

In view of the above, therefore, the presently claimed invention is most certainly *unobvious* over the applied references of record. Withdrawal of the rejection advanced under 35 USC §103(a) is therefore in order.

4. Fee Authorization

The Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, in the fee(s) filed, or asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Account No. 14-1140.

Respectfully submitted,

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